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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,991	10/17/2001	Bassam M. Hashem	71493-953/pw	4493

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02/10/2006

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EXAMINER

HUYNH, NAM TRUNG

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/977,991	<b>Applicant(s)</b> HASHEM ET AL.	
	<b>Examiner</b> Nam Huynh	<b>Art Unit</b> 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Persson (US 5,487,174) in view of Zimmermann et al. (US 6,804,213).

A. Regarding claims 1, 9, and 16, Persson discloses a method of bidirectional communication in a cellular mobile telecommunications system having cells of substantially different size and a base station for each cell comprising:

- A MSC (mobile switching center) that makes decisions on which base station shall be responsible for transmission of radio signals or downlink handoff decisions or control. The MSC is also makes decisions on which base station shall be responsible for receiving the radio signals or uplink handoff decisions or control (column 8, lines 43-55). The MSC also monitors traffic channels and is capable of allocating either downlink or uplink traffic channels to respective base stations (column 18, lines 4-23). Therefore rendering the determination of the predominant direction of traffic.

Persson does not explicitly disclose storing an uplink and downlink candidate list of base stations and selecting at least one optimum base station from the candidate list for both directions of traffic. Zimmermann et al. discloses a cordless telephone system in

which a pre-selection of candidate channel pairs (consisting of an uplink and a downlink channel) for a possible handover is determined and collected in a group (column 2, lines 61-63). Furthermore a shift register is used to memorize the best channel evaluated in the uplink and downlink directions and the channel with the highest number of occurrences in both shift registers is used for determining the new channel pair when quality of the best channel pair carrying the momentary call connection becomes unacceptable (column 7, lines 32-41). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Zimmermann et al., by allowing the MSC of Persson, to maintain a list of candidate base stations for the uplink and downlink direction in order to establish required additional connections and to ensure that proper handover is possible even in case of sudden interruptions of the connection with the current serving base station.

B. Regarding claims 2, 4, 10, 12, 17, 19, 25, and 27, in the combination of Persson and Zimmermann et al., the teachings of Zimmermann et al. of storing and selecting from a candidate listing are applied in the base station selection method of Persson. Therefore in this combination, the storing and selection of candidate channel pairs is equivalent to the storing and selection of candidate base stations.

Zimmermann et al. discloses that the candidate channel pair is determined based on interference strength values. The determination of these interference strength values can be done on the basis of signal quality or signal strength measurements or a combination of both (column 4, lines 45-67). Furthermore, Zimmermann discloses that the candidate group is determined based on short measurements of the received field

strength are periodically accomplished for all available channels in the uplink as well as in the downlink direction (column 6, lines 6-8) and is placed into a listing (column 6, lines 36-39). Although Zimmerman discloses that a candidate channel pair is stored, which includes both uplink and downlink, it is obvious to one of ordinary skill in the art that a channel can be chosen independently, i.e. exclusively in an uplink direction, because both directions are measured. It is further obvious to include a channel pair in the listing if it is a candidate channel pair, and to exclude the channel pair in the listing if it is not a candidate.

C. Regarding claims 3, 5, 11, 13, 18, 20, 26, and 28, Zimmermann et al. disclose that it is possible to provide a criterion that places all candidate channel pairs in groups that exceed a predetermined threshold with respect to a predetermined signal quality (column 5, lines 2-5).

D. Regarding claims 6, 14, 21, and 29, Persson discloses an index (x,y), or ID, for the base station responsible for uplink and downlink to the mobile station (column 16). Zimmermann et al. discloses a shift register that is used to memorize the best channel evaluated in the uplink and downlink directions and the best channel with the highest number of occurrences in both shift registers is used for determining the new channel pair when quality of the channel pair carrying the momentary call connection becomes unacceptable (column 7, lines 32-41). Therefore if the teachings of Zimmermann et al. were followed in the base station selection of Persson, the identity of the optimum base station would be transmitted to the terminal.

E. Regarding claims 7, 15, 22, and 30, Persson discloses the following control steps initiated by the MSC:

- For downlink, the MSC orders base stations responsible for downlink to transmit downlink signal strength measuring orders to mobile stations (column 9, lines 17-20). Then the MSC allocates a free downlink at the base station whose signals are received strongest at the mobile station (column 9, lines 44-46).
- For uplink, the MSC orders base stations responsible for uplink to transmit downlink signal strength measuring orders to mobile stations (column 9, lines 51-55). Then the MSC allocates a free downlink at the base station whose signals are received strongest at the mobile station (column 10, lines 12-15).

Zimmermann et al. teaches the limitation of choosing from a candidate list as explained above in "A" of this office action. Although Persson discloses that downlink/uplink base stations are selected based on signals received strongest at the mobile station, one of ordinary skill in the art would recognize that the base station with strongest received signals at the mobile station would have the lowest current load.

F. Regarding claims 8 and 23, Persson discloses that in some systems the base stations are not directly connected to a mobile switching center (MSC), but to a base station controller (BSC) (column 6, lines 28-32).

G. Regarding claim 24, the limitations are rejected as applied to claim 1. Although it is not explicitly disclosed that a computer readable storage medium is used to carry out instructions of the method described, one of ordinary skill in the art would recognize that the MSC or BSC of the system in Persson is a computer readable medium that would

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operate based on instructions or programming. Furthermore, the process of selecting optimum base stations or channel pairs would also be carried out via computer based programming or instructions.

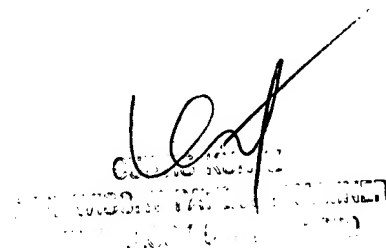
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam Huynh whose telephone number is 571-272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 571-272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

2/5/06  
NTH

A handwritten signature in black ink is written over a rectangular official stamp. The stamp contains the text "COMMUNICATIONS SECTION" and "U.S. PATENT AND TRADEMARK OFFICE" in a grid-like format.